



PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Hiroyuki Sugimura)
Serial No.: 09/891,694)
Conf. No.: 1760)
Filed: 6/26/2001)
For: LIQUID CRYSTAL DISPLAY)
DEVICE MANUFACTURING)
METHOD AND LIQUID)
CRYSTAL DISPLAY DEVICE)
MANUFACTURING SYSTEM)
Art Unit: 2871)
Examiner: Nguyen, Hoan C.)

) I hereby certify that this paper is being deposited with the
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Appr. February 20, 1998

Pre-Appeal Brief Request for Review

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Dear Sirs:

Applicant requests a pre-appeal review of the outstanding final rejections of the pending claims in this application based upon the attached remarks.

Respectfully submitted,

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Pre-Appeal Brief Request for Review Remarks

The pending claims of the present application stand rejected on a basis of Yoshiyuki Japanese Patent No. JP 07-128674 in combination with Ito et al. (U.S.P.N. 6,231,917 B1). Applicants request review of this rejection because an inadequate examination is demonstrated by the record of this prosecution. Requirements of the law of obviousness are not met.

Fairness dictates that the rejection be withdrawn and the application allowed without subjecting Applicants to delay and expense of a full appeal, especially since Applicants filed Response E on May 1, 2006 within two months of receiving a final rejection, but only received an Advisory Action three months later on August 3, 2006.

I. The Application Should be Allowed on Pre-Appeal Because the Examiner has Failed to Make a *Prima Facie* case of Obviousness

A *prima facie* case of obviousness is established when, among other things, all claim limitations are taught or suggested by the prior art. See In re Royka 490 F.2d 981,108 U.S.P.Q. 580 (CCPA 1974). The Examiner has committed a clear error in examination of this application because the step of causing a portion of the liquid crystal to fall onto the first substrate by blowing a gas against the liquid crystal supply needle after the dropping of the liquid crystal step is lacking in the cited prior art references. The record shows that the Examiner has inaccurately attributed a feature not shown in the Ito reference. A misstatement related to a disclosure of a reference not supported in the record is clearly an error.

A. The cited prior art of record does not teach or suggest all of the limitations of claim 1 of the present invention.

To establish a *prima facie* case of obviousness against the claimed invention, all claim limitations must be taught or suggested by the prior art. In the present case, however, all of the claim limitations of the liquid crystal display device manufacturing method are not taught or suggested by either prior art reference. Neither reference teaches nor suggests having liquid crystal adhered to a liquid crystal supply needle to fall *onto a first substrate by blowing a gas against a liquid crystal supply needle* after the dropping of the liquid crystal step.

The Examiner expressly acknowledges, on page 3 of the March 6, 2006 Office Action (Paper No. 0206), that the Yoshiyuki reference fails to disclose a liquid crystal display

device manufacturing method comprising the step of blowing a gas against a liquid crystal supply needle after the dropping the liquid crystal step. Only Ito has been cited for teaching these features. Ito, however, fails to teach or suggest these features as asserted by the Examiner.

The Examiner cites to a single text portion from the Ito reference (col. 5, lns. 45-46 of Paper No. 0206) and asserts that Ito teaches the above step. The cited portion and FIGs. 11A-C of Ito, however, fail to teach or suggest such features. FIGs. 11A-C show liquid collection portions 63a, 63b that collect liquid crystal 13 after completion of the dropping the liquid crystal step. Similarly, col. 5, lns. 45-46 merely state "Furthermore, the present invention can be attained by using a method of shutting out the liquid crystal supply dropwise." Nothing in this cited portion discloses or teaches having liquid crystal adhered to a liquid crystal supply needle fall *onto a substrate* by blowing a gas against a liquid crystal supply needle after the step of dropping a liquid crystal to the substrate from the liquid crystal supply needle. Furthermore, nothing in the cited portion of Ito describes blowing a gas *against a needle*.

Ito shows in FIGs. 5A-C, 9A-B, 10A-C and 11A-C blowing of the liquid crystal. For example, FIGs. 11A-C have gas spray portions 72a, 72b provided below the liquid crystal supply nozzle 11. After dropping from the liquid crystal supply nozzle 11, the liquid crystal is redirected by the gas spray portions 72a, 72b to liquid collection portions 63a, 63b, and not to substrate 15. Additionally, as shown in FIGs. 11B-C, the liquid crystal 13 is not subjected to any blowing forces until after falling a certain distance from the liquid crystal supply nozzle 11. Therefore, Applicants respectfully submit that the gas spray portions 72a, 72b do not blow against the liquid supply nozzle 11, contrary to the Examiner's assertion.

For a *prima facie* case of obviousness under §103 to be appropriately established against independent claim 1 of the present invention, the Examiner is required to identify each and every one of the features and limitations of the present invention discussed above within one of the two cited references of record. Because the Examiner has not identified where: (1) liquid crystal adhered to a surface of a liquid crystal supply needle falls onto a first substrate; or (2) a blowing of a gas against the liquid crystal supply needle after the liquid crystal dropping step are taught or suggested by either cited reference, Applicants submit that the *prima facie* case of obviousness is deficient on its face, and that this Board should reverse the Examiner's final determination to reject the claims of the present invention for at least these reasons.

B. *The Examiner has not cited to any objective teaching or suggestion for the motivation to combine the references*

Applicants respectfully request that this Board also reverse the Examiner's final rejection of the present claims because the Examiner has not identified any objective teaching or suggestion within the prior art references (or elsewhere) that provides a motivation for the proposed combination. When a rejection under §103 is based on a combination of references, the Examiner is required to place on the record objective evidence that would lead one of ordinary skill in the art to combine the relevant teachings of the references. See In re Fritch, 972 F.2d 1260,1265, 23 USPQ2d 1780,1783 (Fed.Cir. 1992) (Emphasis added). This objective evidence must be from either the cited prior art references themselves, or from knowledge generally available to one of ordinary skill in the art. See id. In the present case, however, the Examiner has not satisfied this requirement. The Examiner acknowledges that the Yoshiyuki reference does not teach the combination, and no other objective teaching has been cited by the Examiner for the proposed combination from the Ito reference, or knowledge generally available to one of ordinary skill in this field of art. Without such objective teaching on the record, the §103 rejection is deficient on its face.

With respect to objective evidence outside of the prior art references themselves, no objective knowledge generally available to one of ordinary skill in the art for the combination has been cited. The Specification of the present Application also even describes in detail how many of the features of the present application can not be performed by one having just an ordinary level of skill in the art. Given this evidence on the record, which has never been challenged by the Examiner, the Ito reference remains the only source of record left to consider with respect to finding a teaching or suggestion for the proposed combination.

Ito provides no direction to one skilled in the art to cause a portion of liquid crystal that is adhered to a surface of a liquid crystal supply needle to fall onto a first substrate by blowing a gas against a liquid crystal supply needle after dropping a liquid crystal to the first substrate. Ito teaches a method of forming a liquid film from a liquid output portion arranged above a substrate. In FIG. 6, a nozzle 117 provides liquid crystal via a liquid section portion 127 to a film formation region 21 located on a substrate 15. However, Ito does not disclose or suggest having liquid crystal adhered to a needle to fall onto the substrate, or blow a gas against

the needle after the step of dropping liquid crystal to the substrate. Because no such objective teaching has been cited, the §103 rejection is further deficient on its face.

In fact, the only evidence in the record to support the motivation for the Examiner's proposed combination is the Examiner's conclusory statement. The Examiner stated that the combination of the two references "would have been obvious to one having ordinary skill in the art" (pg. 3, ln. 15 of Paper No. 0206), but only supports this statement with a single additional assertion that it would be obvious "to further modify a liquid crystal display device manufacturing method comprising the step of blowing a gas with external force 15a against the liquid crystal supply needle/tip after the dropping of liquid crystal step for shutting out liquid/or liquid crystal." (Pg. 3, lns. 16-19 of Paper No. 0206). No objective evidence has ever been provided to support this cursory declaration by the Examiner.

Not only does the Examiner's statement regarding the motivation to combine the references fail to meet the objective teaching requirements under §103, the statement also fails to address the proposed combination itself. The objective motivation for the combination of references is a question of fact, and must demonstrate the rationale for "the desirability of making the *specific combination* that was made by the Applicant." See In re Lee, 277 F.3d 1338,1343, 61 U.S.P.Q. 2d 1430 (Fed.Cir. 2002)(citing In re Fine, 837 F.2d 1071,1075, 5 U.S.P.Q. 2d 1596,1600 (Fed.Cir. 1988)(Emphasis added)). The Examiner's expressed rationale in this case does not address why one skilled in the art would be motivated to combine the references.

Instead, the Examiner's entire rationale fails to consider the problem solved by the present invention. As discussed on page 3, lines 12-15 of the present application, in order to have a proper display, a liquid crystal device requires that the amount of liquid crystal sealed within the device be provided with high precision. As further discussed on page 3, lines 22-25, if adhered liquid crystal remains at the top of a liquid crystal supply needle, then the precision in supplying the liquid crystal to a cell is lowered and trouble occurs with the display. Accordingly, the present invention is designed to overcome this problem by ensuring that the drop of liquid crystal adhering to the liquid crystal supply needle is provided to the substrate, which improves the precision of supplying liquid crystal to the substrate.

Ito, however, is not concerned with ensuring that liquid crystal adhered to the liquid crystal supply nozzle is provided to the substrate 15. Instead, Ito is concerned with

preventing any liquid crystal from reaching the substrate 15 after the liquid crystal dropping step. For example, FIGs. 11B-C show gas spray portions 72a, 72b that blow the liquid crystal to liquid collection portions 63a, 63b to prevent liquid crystal from falling on the substrate. In fact, the Examiner explicitly acknowledges that Ito fails to teach this feature in the Advisory Action (Paper No. 20060731) on page 2 by stating “after dropping liquid crystal 13 to form the liquid crystal layer 14 on the substrate, [Ito includes a] step of blowing a gas...to shut out liquid crystal to continue dropping down on the substrate.” Therefore, after liquid crystal is dropped onto the substrate to form the film formation region 21, no further liquid crystal is dropped onto the substrate 15 because it is blown to collection portions 63a, 63b. Therefore, Ito fails to disclose or suggest dropping liquid crystal to a substrate after the liquid crystal dropping step. There is no motivation to combine Ito with Yoshiyuki to achieve the present invention.

There is also no motivation provided in Ito for modifying the Yoshiyuki reference to blow a gas against the liquid crystal supply needle. Ito shows in FIGs. 5A-C, 9A-B, 10A-C and 11A-C steps for blowing the liquid crystal. Ito shows in FIGs. 11A-C gas spray portions 72a, 72b that are located below a liquid crystal supply nozzle 11. Liquid crystal 13 flows through the liquid crystal supply nozzle, and then after falling a distance from the liquid crystal supply nozzle, the liquid crystal is redirected by the gas spray portions 72a, 72b to a liquid collection portion 63a, 63b. Since the liquid crystal 13 is not redirected until after falling from the liquid crystal supply nozzle 11, Applicants respectfully submit that gas is not blown against the liquid crystal supply needle. Therefore, even if Ito was combined with Yoshiyuki, Applicants respectfully submit that one would not be motivated to modify Yoshiyuki to have gas blown against the liquid crystal supply needle. For this reason, Applicants respectfully submit that there is no motivation to combine the references.

Since the Examiner’s entire rationale for the motivation to combine the references is a conclusory statement, a *prima facie* case of obviousness under §103 has not been established. For this reason, Applicants respectfully request that this Board reverse the Examiner’s final rejection of the present claims for at least these reasons as well.

II. Conclusion

Applicant asks that this Pre-Appeal Brief Request be sustained, and the application allowed. As no sufficient rejections have been established, pendency of this application should be ended with an issuance of a Notice of Allowance.